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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/662,679	09/15/2000	Fernando C. M. Martins	10559/195001/P8367	1908
20985	7590	11/16/2004		
FISH & RICHARDSON, PC 12390 EL CAMINO REAL SAN DIEGO, CA 92130-2081			EXAMINER BECKER, SHAWN M	
			ART UNIT	PAPER NUMBER
			2173	

DATE MAILED: 11/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/662,679

Applicant(s)

MARTINS, FERNANDO C. M.

Examiner

Shawn M. Becker

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 12 October 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-3, 7-22, 26 and 28-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 7-22, 26 and 28-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) \*
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

This action is in response to Request for Continued Examination filed 10/12/04.

#### *Claim Rejections - 35 USC § 103*

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-3, 7-22, and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 6,227,968 to Suzuki et al. (hereinafter Suzuki) and U.S. Patent No. 6,256,033 to Nguyen (hereinafter Nguyen).

Referring to claims 1 and 26, Suzuki teaches a method and computer program product that receives audio data including a beat and extracting the beat data from the audio data (i.e. see col. 7, lines 24-34, which describes how beat data is correlated with audio data/songs, implying that the beat data from each song must be extracted for proper correlation). Suzuki teaches determining a gesture window within which a gesture (dance move) should occur, based on a specified time window relative to the beat data, and Suzuki plays the audio data and obtains gesture data during a time that the audio data is being played. See col. 7, lines 35-50. Also, see col. 1, lines 9-13, which describes how the player is to perform the action in time with the rhythm (i.e. the method checks if the player made the proper gesture in time with the beat).

Suzuki segments the gesture data according to the specified time window (time between beats), and Suzuki automatically determines whether a predefined gesture occurred within the

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specified timing window (i.e. if the appropriate dance move/gesture occurred within the timing window for score keeping). See col. 7, lines 25-55 and col. 10, line 30 - col. 11, line 37.

Suzuki does not teach that the gesture data is obtained through video data, wherein the video data is segmented to create a video clip of time including specified time window.

However, Nguyen discloses a method and a computer program product for recognizing gestures contained in video data that segments video data to create a video clip based on timing data that indicates a specified timing window within which a gesture will occur. See col. 2, lines 23-25, which states, "The frame captures the person in the action of performing the gesture at one moment in time" and col. 2, lines 28-34, which states, "These sequence of frame data sets taken over a period of time..." The method determines information related to a gesture occurring in the video clip only at the specified timing. See col. 3, lines 11-14, which describes "determining particular coordinates of the subject at a particular time". (emphasis added).

It would have been obvious to one of ordinary skill in the art to substitute the gesture recognition method (step-on base of a floor panel) in the dance game of Suzuki with the video gesture recognition method of Nguyen, such that the video data is segmented into video clips of the specified timing of Suzuki according to beat data as supported by the beat timing window of Suzuki, because the step-on base of Suzuki only captures the movements of the player's feet, and does not recognize the movements of the rest of the body as intended in Suzuki (col. 1, lines 44-51), wherein the video gesture recognition method of Nguyen captures the movements of the entire body.

Referring to claims 14, Suzuki teaches a system with an audio part that receives audio data including beat data and extracting the beat data from the audio data (col. 7, lines 24-34).

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Suzuki teaches determining a gesture window within which a gesture (dance move) should occur, based on a specified time window relative to the beat data, and Suzuki plays the audio data and obtains gesture data during a time that the audio data is being played. See col. 7, lines 35-50. Also, see col. 1, lines 9-13, which describes how the player is to perform the action in time with the rhythm.

Suzuki segments the gesture data according to the specified time window (time between beats), and Suzuki automatically determines information related to a gesture occurring within the specified timing window (i.e. if the appropriate dance move/gesture occurred within the timing window for score keeping). See col. 7, lines 25-55 and col. 10, line 30 - col. 11, line 37.

Suzuki does not teach that the gesture data is obtained through video data, wherein the video data is segmented to create a video clip of time including specified time window.

However, Nguyen discloses a system with a processor (Fig. 1, 102) for recognizing gestures contained in video data that has a temporal segmentor that segments video data to create a video clip based on timing data that indicates a specified timing window within which a gesture will occur. See col. 2, lines 23-25, which states, "The frame captures the person in the action of performing the gesture at one moment in time" and col. 2, lines 28-34, which states, "These sequence of frame data sets taken over a period of time..." The method determines information related to a gesture occurring in the video clip only at the specified timing. See col. 3, lines 11-14, which describes "determining particular coordinates of the subject at a particular time". (emphasis added). Nguyen also discloses a recognition engine, in communication with the temporal segmentor, to determine if the video clip contains a predefined gesture, only within a specified timing window. See col. 1, lines 17-23 and col. 3, lines 11-14.

It would have been obvious to one of ordinary skill in the art to substitute the gesture recognition system (step-on base of a floor panel) in the dance game of Suzuki with the video gesture recognition system of Nguyen, such that the video data is segmented into video clips of specified timing according to beat data as supported by the beat timing window of Suzuki, because the step-on base of Suzuki only captures the movements of the player's feet, and does not recognize the movements of the rest of the body as intended in Suzuki (col. 1, lines 44-51), wherein the video gesture recognition system of Nguyen captures the movements of the entire body.

Referring to claims 2-3, the combination of Suzuki and Nguyen, *supra*, describes how Hidden Markov Models are used to determine a probability that each of one or more predefined gestures are performed within a timing window. See col. 5, lines 13-45 of Nguyen.

Referring to claim 7, 17-18, and 21, the dance game of Suzuki teaches displaying a target gesture to be performed by the subject. The target gesture is a dance move. See col. 12, lines 57-61. The target gesture is displayed on the display subsystem (monitor; col. 12, line 59).

Referring to claims 8-10, the combination of Suzuki and Nguyen, *supra*, teaches each video clip contains video frames (Nguyen at col. 7, line 22), and in each frame, the moving regions are identified (Nguyen at col. 8, lines 58-61). Feature vectors (array of key points) are generated for each video frame of the video clip. See Nguyen at col. 8, line 49 – col. 9, line 46, which describes how significant positional coordinates are extracted from each frame to make a comparison to the known gesture coordinates.

Referring to claims 11-12 and 19-20, the method of Suzuki and Nguyen, *supra*, generates and displays a score based on whether a target movement (gesture) was performed. See Suzuki

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at col. 11, lines 37-41. The object of the Suzuki dance game is to achieve the highest score by performing the appropriate gestures.

Referring to claims 13 and 22, the combination of Suzuki and Nguyen, *supra*, discloses that the recognition engine is configured to recognize predefined gestures and that determining if the video clip contains a target gesture includes generating a gesture probability vector (array) having a plurality of elements, each element being associated with one of a predefined gestures and representing a probability that the video clip contains each of the associated predefined gestures. See col. 11, lines 30-49 and col. 10, lines 18-37.

Referring to claim 15, the recognition engine of Suzuki and Nguyen, *supra*, includes a plurality of Hidden Markov Models. See Nguyen at col. 5, lines 13-18.

Referring to claim 16, the system of Suzuki and Nguyen, *supra*, includes a video source (Nguyen at Fig. 2, 200), in communication with the temporal segmentor, to provide the video data to the temporal segmentor.

3. Claims 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nguyen and Suzuki.

Referring to claim 28, Nguyen teaches an A/V processing system that includes a video source (camera; Fig. 2, 200). Nguyen discloses a computer program product for recognizing gestures contained in video data, comprising instruction operable to cause a programmable processor, in communication with the video source to segment the video clip and automatically determine if the video clip contains a predefined gesture. See col. 1, lines 17-23.

Nguyen determines a gesture window within which a gesture should occur. See col. 2, lines 23-25, which states, "The frame captures the person in the action of performing the gesture

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at one moment in time” and col. 2, lines 28-34, which states, “These sequence of frame data sets taken over a period of time...” The method determines information related to a gesture occurring in the video clip only at the specified timing. See col. 3, lines 11-14, which describes “determining particular coordinates of the subject at a particular time”. (emphasis added).

Nguyen does not explicitly teach an audio source to provide audio data including beat data from which beat data is extracted, such that the a specified time window of the segments are based on the beat data or obtaining the video data during a time that the audio signal is being produced. However, Suzuki teaches a dance game, which is intended to make the player use his entire body to create rhythm sensations (col. 1, lines 47-50). The dance game of Suzuki teaches that audio data is received and the beat data is extracted to create a specified timing window (col. 7, lines 24-34). Suzuki determines if a predefined gesture (dance move) is performed by detecting dance steps on a step-on base only within a specified timing window related to the beat data. For example, see col. 14, lines 6-18. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the gesture recognition method of Nguyen to be used in the dance game of Suzuki, such that the video data is obtained during a time that the audio data is played and the specified timing window for seeing if a gesture occurred is related to beat data extracted from audio data as supported by Suzuki. One would have been so motivated in order to compare all movements of a player (i.e. arms) to an appropriate dance move because the step-on base of Suzuki only captures the movements of the player’s feet, and does not recognize the movements of the rest of the body as intended in Suzuki.



Referring to claim 29, Nguyen teaches the computer program product includes instruction operable to cause the programmable processor to perform a Hidden Markov Model process to determine if the video clip contains the predefined gesture. See col. 5, lines 13-18.

Referring to claim 30, Nguyen discloses a display (monitor; Fig. 2, 208) to display information based on whether the video clip contains the predefined gesture. See col. 6, lines 36-44, which describes how figures on the display can be augmented if the gesture is recognized as a predefined gesture.

### *Response to Arguments*

4. Applicant's arguments filed 10/12/04 have been fully considered but they are not persuasive.

Applicant argues that Suzuki does not teach extracting beat data from received audio data. However, in order for the songs/audio data received in Suzuki to be accurately correlated with beat data as described in col. 7, lines 24-34, the beat data must be extracted in Suzuki.

Applicant argues that Nguyen does not teach segmenting video data into a clip with a timing window corresponding to beat data. However, Nguyen does teach segmenting video (i.e. col. 2, lines 23-35, col. 3, lines 11-14, and col. 11, lines 23-26), and Suzuki teaches checking for a gesture within a specified timing of a beat, which segments the monitoring of the user/dancer. Therefore, it would have been obvious to one of ordinary skill in the art to segment the monitoring of user activity in the video gesture recognition of Nguyen in the same way, such that the system checks for a dance move within a specified time of the beat as supported in Suzuki. See col. 7, lines 35-50 and col. 1, lines 9-13 of Suzuki.

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5. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the step-on base of Suzuki provides for a type of input means that utilizes full body motion for capturing a user's dance move/gesture. Nguyen teaches a type of input means that also recognizes full body motion and was known at the time of the invention to be substitutable for mechanical input means, such as the input means of Suzuki (i.e. col. 6, lines 34-36 of Nguyen).

### *Conclusion*

6. The prior art made of record on form PTO-892 and not relied upon is considered pertinent to applicant's disclosure. Applicant is required under 37 C.F.R. § 1.111(c) to consider these references fully when responding to this action. The documents cited therein teach tracking body movement.

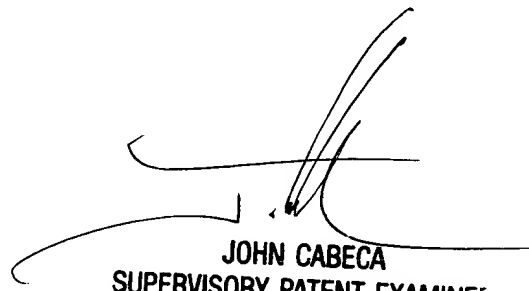
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shawn M. Becker whose telephone number is (571) 272-4046. The examiner can normally be reached on M-F 8:30-6:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John W. Cabeca can be reached on (571) 272-4048. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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